

Abstract

Method for determining the amplitude and phase angle of a measuring signal corresponding to a current or voltage of an electrical power supply network

The invention relates to a method for determining the amplitude and phase angle of a measuring signal corresponding to a current or a voltage on an electrical power supply network by using sampled values of the measuring signal, a model of the measuring signal containing at least a sinusoidal component being used to calculate the amplitude and phase of the measuring signal with the sampled values by applying a recursive least-squares estimation method.

In order to be able to determine the frequency of the measuring signal together with the amplitude and the phase angle, use is made of a model of the measuring signal in accordance with the relationship $y = A \cdot \sin(2\pi ft + \varphi)$, and by using this model and the sampled values (y_m), the determination of the frequency of the measuring signal (u_m) as well is carried out by means of a recursive nonlinear least-squares estimation method. By expanding the signal model, measuring signals with a DC component and with frequencies that change over time can also be investigated.

FIG 1

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